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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,688	01/02/2001	Masashi Hachinota	Q62534	8185

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2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

VOLPER, THOMAS E

ART UNIT PAPER NUMBER

2665

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/750,688

Applicant(s) **AK**

HACHINOTA, MASASHI

Examiner

Thomas Volper

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7 September 2004 have been fully considered but they are not persuasive.

2. Applicant argues that the use of buffers (414) in figure 1 of the Specification leads to undesirably large equipment size with high costs (page 2, 1st paragraph of "Remarks").

However, the fact that a combination would not be made by businessmen for economic reasons does not mean that a person of ordinary skill in the art would not make the combination because of some technological incompatibility. In re Farrenkopf, 713 F.2d 714, 219 USPQ 1 (Fed. Cir. 1983) (Prior art reference taught that addition of inhibitors to radioimmunoassay is the most convenient, but costliest solution to stability problem. The court held that the additional expense associated with the addition of inhibitors would not discourage one of ordinary skill in the art from seeking the convenience expected therefrom) (see MPEP 2145). Applicant also argues that figure 1 does not teach an arbiter that "outputs a connection permission signal at a designated slower timing interval than a normal timing interval..." (also page 2, 1st paragraph of "Remarks"). The Examiner has relied upon Applicant's figure 1 to disclose an arbiter that outputs a connection permission signal. The Examiner relies upon Iliadis for a signal that is outputted at a slower timing interval than a normal timing interval, as described below.

3. Applicant argues that Iliadis provides no teaching of outputting a connection permission signal at a designated slower timing interval than a normal timing interval to one input line buffer that outputs cells to an external output line whose output line rate is slower than a

Art Unit: 2665

corresponding input line rate (page 3 of "Remarks"). Applicant also argues that the predetermined delay of transmission, time T , is not a timing interval for a connection permission signal. The Applicant's admitted prior art (AAPA) provides a connection permission signal, as stated above. Iliadis provides a means for slowing the transmission from a particular input to a particular output in the case that the output begins to overflow. The delay time T does in fact meet the limitation of a timing interval. Iliadis states, "In contrast to the known backpressure mechanism, which allows the input to retry the transmission of the same packet immediately, i.e. in the next switch cycle, the interrupting means are delaying this retry for the time period T " (col. 4, lines 38-42). Thus, there is a switch cycle for sending packets from an input to an output, which meets the limitation of a normal timing interval. By delaying the sending of a packet to an output, the time interval between packets is temporarily lengthened, thus creating a slower timing interval as in the present invention. Although this timing interval is not explicitly associated with a connection permission signal, it is obvious to combine this slower timing interval with the connection permission signal provided by the AAPA in order to avoid packet loss in an output buffer. Applicant also argues that Iliadis does not prevent overflow in its output buffers. However, the claims do not recite a limitation regarding preventing overflow in its output buffers, thus this argument is considered moot.

4. Applicant argues that the predetermined period of time T of Iliadis does not correspond to any output line rate (page 4 of "Remarks"), and the Examiner respectfully disagrees. The reason an output buffer becomes full is simply because packets are entering the output buffer faster than they are being outputted. The period of time T is triggered independently by a particular input

Art Unit: 2665

line transmitting unsuccessfully to an output buffer, i.e. the output buffer reaches an overflow state (col. 4, lines 42-44).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Iliadis et al. (US 5,742,606).

Regarding claims 1 and 6-8, Applicant's admitted prior art (AAPA) discloses switching equipment that includes M input line buffers, an MxN crossbar type switch for switching cells based on a cross point on/off control signal, N output lines sections and an arbiter that outputs a connection permission signal to one of said input line buffers based on connection request signals outputted from said M input line buffers and outputs said cross point on/off control signal to said MxN crossbar type switch (pages 1 and 2 of the Specification; Fig. 1). AAPA fails to expressly disclose sending the connection permission signal at a designated slower timing interval than a normal timing interval to one input line buffer that outputs cells to an external output line whose output line rate is slower than a corresponding input line rate. Iliadis discloses a packet switch wherein if an output buffer for a particular output line enters an overflow state, i.e. the output line rate is slower than the input line rate, an interruption is triggered for the transmitting input for a time period T, rather than simply retrying the transmission in the next

Art Unit: 2665

switch cycle (col. 4, lines 1-20 and lines 32-44). This meets the limitation of a slower timing interval than a normal timing interval for sending packets from one input line buffer to a corresponding output line. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this interrupt feature of Iliadis in the arbiter of the system provided by AAPA. One of ordinary skill in the art would have been motivated to do this in order to prevent the output line buffer from losing packets due to overflow.

Regarding claim 2, the previous paragraph discloses that all the functions of claim 2 are present in the arbiter of the combination of AAPA in view of Iliadis.

Regarding claim 3, Iliadis discloses an interruption triggered by backpressure from the output buffer (col. 4, lines 1-11), which meets the limitation of a mask signal, and that a signal is given after time T (col. 4, lines 15-16), which meets the limitation of a mask cancellation signal.

Regarding claim 4, Iliadis discloses that the time period T is a multiple of one switch cycle (col. 4, lines 15-20). A switch cycle represents the normal timing interval.

Regarding claim 5, AAPA discloses M input line buffers comprising N FIFOs, a distributor and a selector (pages 1 and 2 of the Specification).

Regarding claim 9, Iliadis discloses that the delay period T is initiated in response to a buffer overflow condition, as mentioned above, and that the goal of the invention is to avoid packet loss. While recovering from the overflow condition during the delay period T, the output line rate is necessarily greater than the corresponding input line rate so as to reduce the fullness of the output buffer.

Art Unit: 2665

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) view of Iliadis et al. (US 5,742,606) as applied to claims 1-9 above, and further in view of Charny et al. (US 6,072,772).

Regarding claim 10, the AAPA in view of Iliadis discloses all of the limitations of claim 10 except that the external line section is a bufferless component. Charny discloses an external line section that is a bufferless component. Charny makes use of virtual queues in an arbiter to schedule traffic for the output ports, which contain no buffers (see Figure 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the bufferless outputs of Charny in the system provided by the AAPA in view of Iliadis. One of ordinary skill in the art would have been motivated to save delay time during the transfer of cells through the switch.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2665

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is (571) 272-3151. The examiner can normally be reached between 8:30am and 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at (571) 272-3155. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Thomas E. Volper

TEV

December 29, 2004

A handwritten signature in black ink, appearing to read 'Huy D. Vu', with a long horizontal line extending to the right.

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600